

The following listing of claims will replace all prior versions, and listings, of claims in this application:

1. (Currently Amended) A heat-induced gelling foaming composition comprising an aqueous phase, said aqueous phase comprising a physiologically acceptable medium suitable for topical application; and a polymer comprising water-soluble units and units having in water a lower critical solution temperature LCST, the heat-induced demixing temperature in aqueous solution of said units with an LCST being from 5 to 40°C for a concentration of said units in water of 1% by mass, and the concentration of said polymer in said composition being such that its gel point is in the range from 5 to 40°C.

2. (Previously Presented) The composition according to Claim 1, in which the heat-induced demixing temperature in aqueous solution of the units with an LCST of the polymer is from 10 to 35°C for a concentration by mass in water of 1% of the said units.

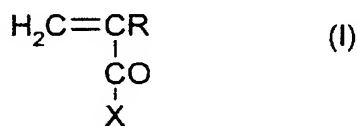
3. (Previously Presented) The composition according to Claim 2, in which the concentration of the polymer in the composition is such that its gel point is in the range from 10 to 35°C.

4. (Previously Presented) The composition according to Claim 1, in which the polymer is in the form of a block polymer comprising blocks consisting of water-soluble units alternating with blocks of units with an LCST, or in the form of a grafted polymer whose backbone is formed by water-soluble units, said backbone bearing grafts of units with an LCST.

5. (Previously Presented) The composition according to Claim 1, in which the water-soluble units are totally or partially capable of being obtained by polymerization, or by polycondensation, or comprise totally or partially of natural polymers or modified natural polymers.

6. (Previously Presented) The composition according to Claim 5, in which the water-soluble units are totally or partially capable of being obtained by polymerization, of at least one monomer selected from the group consisting of:

- (meth)acrylic acid;
- vinyl monomers of formula (I) below:



in which:

- R is H, -CH₃, -C₂H₅ or -C₃H₇, and
- X is:
- alkyl oxides of -OR' type in which R' is a linear or branched, saturated

or unsaturated hydrocarbon-based radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom selected from the group consisting of iodine, bromine, chlorine and fluorine); a sulphonic (-SO₃⁻), sulphate (-SO₄⁻), phosphate (-PO₄H₂); hydroxyl (-OH); primary amine (-NH₂); secondary amine (-NHR₁), tertiary amine (-NR₁R₂) or quaternary amine (-N⁺R₁R₂R₃) group with R₁, R₂ and R₃ being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon-based radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of R' + R₁ + R₂ + R₃ does not exceed 7; and

- -NH₂, -NHR₄ and -NR₄R₅ groups in which R₄ and R₅ are,

independently of each other, linear or branched, saturated or unsaturated hydrocarbon-based radicals containing 1 to 6 carbon atoms, with the proviso that the total number of carbon atoms of R₄ + R₅ does not exceed 7, the said R₄ and R₅ optionally being substituted with a

halogen atom selected from the group consisting of iodine, bromine, chlorine ~~or~~ and fluorine); a hydroxyl (-OH); sulphonic (-SO₃⁻); sulphate (-SO₄⁻); phosphate (-PO₄H₂); primary amine (-NH₂); secondary amine (-NHR₁), tertiary amine (-NR₁R₂) and/or quaternary amine (-N⁺R₁R₂R₃) group with R₁, R₂ and R₃ being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of R₄ + R₅ + R₁ + R₂ + R₃ does not exceed 7;

- maleic anhydride;
- itaconic acid;
- vinyl alcohol of formula CH₂=CHOH;
- vinyl acetate of formula CH₂=CH-OCOCH₃;
- N-vinyl lactams such as N-vinylpyrrolidone, N-vinylcaprolactam and N-butyrolactam;
- vinyl ethers of formula CH₂=CHOR₆ in which R₆ is a linear or branched, saturated or unsaturated hydrocarbon radical containing from 1 to 6 carbon atoms;
- water-soluble styrene derivatives, especially styrene sulphonate;
- dimethyldiallylammonium chloride; and
- vinylacetamide.

7. (Currently Amended) The composition according to Claim 5, in which the water-soluble units of the polymer comprises totally or partially of polycondensates or of natural polymers or modified natural polymers of one or more ~~polymers~~ polymers selected from the group consisting of:

- water-soluble polyurethanes;
- xanthan gum;
- alginates and derivatives thereof;
- cellulose derivatives;

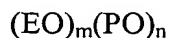
- galactomannans and derivatives thereof; and
- polyethyleneimine.

8. (Previously Presented) The composition according to Claim 5, in which the water-soluble units of the polymer have a molar mass ranging from 1000 g/mol to 5 000 000 g/mol when they constitute the water-soluble backbone of a grafted polymer, or a molar mass ranging from 500 g/mol to 100 000 g/mol when they constitute a block of a multiblock polymer.

9. (Previously Presented) The composition according to Claim 1, in which the units with an LCST of the polymer comprises of one or more polymers selected from the group consisting of:

- polyethers;
- polyvinyl methyl ethers ;
- polymeric and copolymeric N-substituted acrylamide derivatives with an LCST; and
- polyvinylcaprolactam and vinylcaprolactam copolymers.

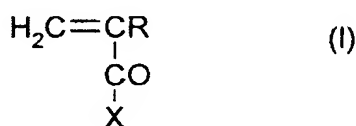
10. (Previously Presented) The composition according to Claim 1, in which the units with an LCST of the polymer comprises polypropylene oxide (PPO)_n with n being an integer from 10 to 50, or of random copolymers of ethylene oxide (EO) and of propylene oxide (PO), represented by the formula:



in which m is an integer of 1 to 40, and n is an integer ranging of 10 to 60.

11. (Previously Presented) The composition according to Claim 10, in which the molar mass of the units with an LCST of the polymer is from 500 to 5300 g/mol.

12. (Previously Presented) The composition according to Claim 1, in which the units with an LCST of the polymer comprise a polymer selected from the group consisting of poly-N-isopropylacrylamide, poly-N-ethylacrylamide, and copolymers of N-isopropylacrylamide or of N-ethylacrylamide and of a vinyl monomer selected from the group consisting of monomers having the formula (I):



in which:

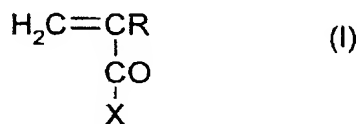
- R is H, -CH₃, -C₂H₅ or -C₃H₇, and
- X is:
 - alkyl oxides of -OR' type in which R' is a linear or branched, saturated or unsaturated hydrocarbon-based radical containing from 1 to 6 carbon atoms, optionally substituted with at least one halogen atom selected from the group consisting of iodine, bromine, chlorine and fluorine; a sulphonic (-SO₃⁻), sulphate (-SO₄⁻), phosphate (-PO₄H₂); hydroxyl (-OH); primary amine (-NH₂); secondary amine (-NHR₁), tertiary amine (-NR₁R₂) or quaternary amine (-N⁺R₁R₂R₃) group with R₁, R₂ and R₃ being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon-based radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of R' + R₁ + R₂ + R₃ does not exceed 7; and
 - -NH₂, -NHR₄ and -NR₄R₅ groups in which R₄ and R₅ are, independently of each other, linear or branched, saturated or unsaturated hydrocarbon-based radicals containing 1 to 6 carbon atoms, with the proviso that the total number of carbon

atoms of $R_4 + R_5$ does not exceed 7, the said R_4 and R_5 optionally being substituted with a halogen atom (selected from the group consisting of iodine, bromine, chlorine or fluorine); a hydroxyl ($-OH$); sulphonic ($-SO_3^-$); sulphate ($-SO_4^-$); phosphate ($-PO_4H_2$); primary amine ($-NH_2$); secondary amine ($-NHR_1$), tertiary amine ($-NR_1R_2$) and/or quaternary amine ($-N^+R_1R_2R_3$) group with R_1 , R_2 and R_3 being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $R_4 + R_5 + R_1 + R_2 + R_3$ does not exceed 7,

maleic anhydride, itaconic acid, vinylpyrrolidone, styrene, styrene derivatives, dimethyldiallylammonium chloride, vinylacetamide, vinyl alcohol/vinyl acetate, vinyl ethers and vinyl acetate derivatives.

13. (Previously Presented) The composition according to Claim 12, in which the molar mass of the units with an LCST of the polymer is from 1000 g/mol to 500 000 g/mol.

14. (Previously Presented) The composition according to Claim 1, in which the units with an LCST of the polymer comprises a polyvinylcaprolactam or a copolymer of vinylcaprolactam and of a vinyl monomer selected from the group consisting of monomers corresponding to formula (I):



in which:

- R is H, $-CH_3$, $-C_2H_5$ or $-C_3H_7$, and
- X is:
- alkyl oxides of $-OR'$ type in which R' is a linear or branched, saturated or unsaturated hydrocarbon-based radical containing from 1 to 6 carbon atoms, optionally

substituted with at least one halogen atom selected from the group consisting of iodine, bromine, chlorine and fluorine; a sulphonic ($-\text{SO}_3^-$), sulphate ($-\text{SO}_4^-$), phosphate ($-\text{PO}_4\text{H}_2$); hydroxyl ($-\text{OH}$); primary amine ($-\text{NH}_2$); secondary amine ($-\text{NHR}_1$), tertiary amine ($-\text{NR}_1\text{R}_2$) or quaternary amine ($-\text{N}^+\text{R}_1\text{R}_2\text{R}_3$) group with R_1 , R_2 and R_3 being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon-based radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $\text{R}' + \text{R}_1 + \text{R}_2 + \text{R}_3$ does not exceed 7; and

- $-\text{NH}_2$, $-\text{NHR}_4$ and $-\text{NR}_4\text{R}_5$ groups in which R_4 and R_5 are, independently of each other, linear or branched, saturated or unsaturated hydrocarbon-based radicals containing 1 to 6 carbon atoms, with the proviso that the total number of carbon atoms of $\text{R}_4 + \text{R}_5$ does not exceed 7, the said R_4 and R_5 optionally being substituted with a halogen atom (selected from the group consisting of iodine, bromine, chlorine and fluorine); a hydroxyl ($-\text{OH}$); sulphonic ($-\text{SO}_3^-$); sulphate ($-\text{SO}_4^-$); phosphate ($-\text{PO}_4\text{H}_2$); primary amine ($-\text{NH}_2$); secondary amine ($-\text{NHR}_1$), tertiary amine ($-\text{NR}_1\text{R}_2$) and/or quaternary amine ($-\text{N}^+\text{R}_1\text{R}_2\text{R}_3$) group with R_1 , R_2 and R_3 being, independently of each other, a linear or branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms, with the proviso that the sum of the carbon atoms of $\text{R}_4 + \text{R}_5 + \text{R}_1 + \text{R}_2 + \text{R}_3$ does not exceed 7, maleic anhydride, itaconic acid, vinylpyrrolidone, styrene and its derivatives, dimethyldiallylammonium chloride, vinylacetamide, vinyl alcohol, vinyl acetate, vinyl ethers and vinyl acetate derivatives.

15. (Previously Presented) The composition according to Claim 14, in which the molar mass of the units with an LCST is from 1000 to 500 000 g/mol.

16. (Previously Presented) The composition according to Claim 1, in which the proportion by mass of units with an LCST of the polymer is from 5 to 70% relative to the polymer.

17. (Previously Presented) The composition according to Claim 1, in which the concentration by mass of polymer in the aqueous phase is from 0.1 to 20%.

18. (Previously Presented) The composition according to Claim 1, in which the aqueous phase further comprises a foaming surfactant.

19. (Previously Presented) The composition according to Claim 18, in which said foaming surfactant is nonionic.

20. (Currently Amended) The composition according to Claim 1, in which the aqueous phase comprises a physiologically acceptable medium suitable for ~~topical~~ cosmetic application.

21. (Previously Presented) The composition according to Claim 20, wherein the composition is a shower gel, a facial cleansing product, a make-up-removing product, a shampoo, shaving foam or a shaving gel.

22. (Previously Presented) A foam obtained by foaming the composition according to Claim 1, wherein a dispersion of gas bubbles is formed in the continuous aqueous phase.

23. (Previously Presented) A method of stabilizing a foam formed from a composition comprising an aqueous phase, the method comprising adding a polymer to the aqueous phase wherein the polymer comprises water-soluble units and units having in water a lower critical solution temperature LCST, the heat-induced demixing temperature in aqueous solution of said units with an LCST being from 5 to 40°C for a concentration of said units in water of 1% by mass, and the concentration of said polymer in said composition being such that its gel point is in the range from 5 to 40°C of the composition.

24. (Cancelled)

25. (Previously Presented) A process for cleansing and/or removing make-up from keratinous materials comprising applying to the keratinous materials the composition according to Claim 1, in the presence of water, forming a foam, and removing the foam formed and the soiling residues by rinsing with water.

26. (Previously Presented) The composition according to Claim 4, wherein the polymer is in the form of a grafted polymer whose backbone is formed by water-soluble units, wherein said backbone bearing grafts of units with an LCST is partially crosslinked.

27. (Previously Presented) The composition according to Claim 7, wherein the water-soluble units of the polymer comprises alginate derivatives and the alginate derivative is propylene glycol alginate.

28. (Previously Presented) The composition according to Claim 7, wherein the water-soluble units of the polymer comprises at least one cellulose derivative and the cellulose derivative is selected from the group consisting of carboxymethylcellulose, hydroxypropylcellulose, hydroxyethylcellulose and quaternized hydroxyethylcellulose.

29. (Previously Presented) The composition according to Claim 7, wherein the water-soluble units of the polymer comprise at least one galactomannan derivative and the galactomannan derivative is selected from the group consisting of Konjac gum, guar gum, hydroxypropylguar, hydroxypropylguar modified with sodium methylcarboxylate groups, and hydroxypropyltrimethylammonium guar chloride.

30. (Previously Presented) The composition according to Claim 9, where the one or more polymers is a polyether and the polyether is selected from the group consisting of

polyethylene oxide; polypropylene oxide; and a random copolymer of ethylene oxide and of propylene oxide.

31. (Previously Presented) The composition according to Claim 10, wherein the units with an LCST comprise a random copolymer of ethylene oxide and propylene oxide represented by $(EO)_m(PO)_n$, wherein m is an integer of 2 to 20.

32. (Previously Presented) The composition according to Claim 10, wherein the units with an LCST comprise a random copolymer of ethylene oxide and propylene oxide represented by $(EO)_m(PO)_n$, wherein n is an integer of 20 to 50.

33. (Previously Presented) The composition according to Claim 11, wherein the molar mass of the units with an LCST of the polymer is from 1,500 to 4000 g/mol.

34. (Previously Presented) The composition according to Claim 13, wherein the molar mass of the units with an LCST of the polymer is from 2000 to 50 000 g/mol.

35. (Previously Presented) The composition according to Claim 15, wherein the molar mass of the units with an LCST is from 2000 to 50,000 g/mol.

36. (Previously Presented) The composition according to Claim 16, wherein the proportion by mass of units with an LCST of the polymer is from 20 to 65% relative to the polymer.

37. (Previously Presented) The composition according to Claim 16, wherein the proportion by mass of units with an LCST of the polymer is from 30 to 60% relative to the polymer.

38. (Previously Presented) The composition according to Claim 20, in which the topical application is a cosmetic application.

39. (Previously Presented) The composition according to Claim 6, in which the water-soluble units are totally or partially capable of being obtained by free-radical polymerization.